Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands	)	WT Docket No. 03-66 RM-10586
	)	
Part 1 of the Commission's Rules - Further Competitive Bidding Procedures	)	WT Docket No. 03-67
	)	
Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and the Instructional Television Fixed Service to Engage in Fixed Two-Way Transmissions.	)	MM Docket No. 97-217

Comments of
The George Mason University Instructional Foundation, Inc.
F Corporation and
The Michael Kelley Revocable Trust, d/b/a/ Shannondale Wireless

The George Mason University Instructional Foundation, Inc., by its President, F Corporation, by its CEO, and the Michael Kelley Revocable Trust, d/b/a/ Shannondale Wireless, by its Sole Trustee, hereby submit their consolidated comments in response to the Commission's *Notice of Proposed Rulemaking ("NPRM")* in above the captioned matters.

I. Introduction.

The George Mason University Instructional Foundation, Inc. is the licensee of three ITFS stations on the C Group in the Metropolitan Washington, D.C. area, WHB 652 in Rosslyn, Virginia, WLX 235 in Bethesda, Maryland, and WLX 728 in Shannondale, West Virginia. It is also the licensee of temporary fixed stations on the C and F Group throughout metropolitan Washington, KA 88815 and KA 88816. F Corporation, a wholly owned for profit subsidiary of the Instructional Foundation is the licensee of MMDS station WHT 659 on the F Group in Bethesda, Maryland. The Michael Kelley Revocable Trust is the licensee of MDS stations WNEY 445 in Bethesda, Maryland and WMY 489 in Martinsburg, West Virginia, both on Channel H-1, as well as WHT 629, MDS1 and WLK 242, MDS2, in Shannondale, West Virginia.

WHB 652, WHT 629, and WNEY 445 are utilized in George Mason University's Capitol Connection instructional and business television service in the Washington, D.C. area. Besides GMU courses for credit, the stations broadcast C-SPAN, C-SPAN2, CNN, CNBC, MSNBC, as well as the open meetings of the FCC and the FERC to more than 1700 government and commercial offices, law firms, trade associations, schools, and news organizations throughout greater Washington. The service has been on the air since 1981 and reaches more than 35,000 television sets in over 570 separate office buildings. WLX 728 along with KA 88815 and KA 88816 are utilized exclusively to provide George Mason University televised courses for credit to college campuses as well as cable headends in Northern Virginia that serve more than 200,000 homes.

WHT 629 and WLK 242 have been leased to Ntelos since 1997 (though between 1992 and 1997 WHT 629, a commercial MDS station, was leased to the Jefferson County, West Virginia Board of Education to deliver educational programming to their 14 schools). WMY 489 is also leased to Ntelos in Martinsburg, West Virginia.

Overseeing this complex instructional and commercial television operation in the 2.1 and 2.5 GHz bands, Dr. Michael R. Kelley is a member of both the WCA and NIA Boards, and was a founding member of the WCA in 1988. He serves on the Government Relations Committee of the WCA and on the negotiating team of the WCA, NIA, CTN Coalition which developed the initial "Proposal To Revise The MDS and ITFS Regulatory Regime" RM-10586 (filed with the Commission on October 7, 2002, "Initial Coalition Proposal").

Michael Kelley has been heavily involved with both the instructional and commercial uses of this spectrum for more than twenty years and has had the opportunity to watch the slow and often tortuous evolution of ITFS. Beginning as an instructional-only service, by the early 1980's it became one which could lease its excess capacity to commercial interests. Later the Commission allowed ITFS/MDS to digitize and compress their channels, and still later to operate in a two-way mode. Over the years, GMUIF, F Corp and/or Kelley have filed in support of these permissions to modernize the use of this spectrum. George Mason was, in fact, the first ITFS operator in the nation to take advantage of the Commission's rules allowing the leasing of excess capacity, and we signed that lease with American Family Theatre in April 1984. (The lease was for

one channel at night and on weekends, and the right to sell the programming that we put on the other three channels to subscribers of AFT's Wireless Cable System.)

With the issuance of each new set of "command and control" rules by the Commission, the spectrum has come closer to fulfilling its goals -- to facilitate and support the instructional mission of its ITFS licensees and to bring valuable and needed commercial services to the American public. Now, the Commission has the opportunity finally to leave the command and control mode and set this spectrum free to become a crown jewel for education, and a servant of the public's need for additional fixed, portable and mobile voice and data services.

II. Support for the Initial Coalition Proposal and Its Response to the NPRM.

Having been closely involved in the drafting of the original Coalition Proposal and in its response to the Commission's NPRM, The George Mason University Instructional Foundation, Inc., F Corporation, and the Michael Kelley Revocable Trust wholeheartedly and unreservedly support that Initial Proposal. We support the division of the band into three segments, the LBS, the MBS and the UBS. We support the deinterleaving of the channels and the use of seven 6 MHz channels in the MBS for high-power, high site video or data operations. We support the concept of the J and K transition bands as well as the deinterleaved I channels. We feel there is no better way to quickly transition the band than the use of a "proponent" in each market to trigger each transition. We also support the true flexibility of the Initial Proposal that allows the opportunity for high power operations in the LBS and UBS or low power operations in the MBS depending on marketplace needs.

We also applaud the other aspects of overall flexibility that the Coalition's band plan affords. Unlike any other band plan we can think of or that has been suggested by the Commission in its NPRM or by others, the Coalition's band plan allows FDD, TDD, and High Power downstream video and data services to operate in 2.5 GHz band, with minimal regulatory involvement and minimal use of guard bands. It provides the freedom for users of this spectrum to change from FDD or TDD or High Power to Low Power in the future, as new technologies emerge.

We also support the recommended interference protections which the Coalition proposal achieves by limiting out of band emissions through filters only when necessary when basically incompatible services have been launched in adjacent channels. We support the Coalition's proposed protections to ITFS receive sites from cellular operations and the upgrading of ITFS receive equipment so that it can adequately protect against brute force overload. Finally, we support the Coalition's suggestions for streamlining the Commission's Rules governing ITFS and MDS.

We also have been closely involved in the drafting of the Coalition's Response to the NPRM and strongly support the arguments it makes in its Response in support of the Initial Proposal. Many of the Commission's questions in the NPRM are interesting and thoughtful ones. The idea of allowing unlicensed underlay, the concept of a two-sided auction, the suggestions for utilization of unassigned ITFS spectrum, and the question of ITFS eligibility all are highly charged questions and the Coalition provides reasoned

answers to all but the eligibility item in its joint Response to the NPRM. We wholeheartedly support the arguments in that Response. We also support the many suggestions by the Commission that are also embraced in the Coalition's Response regarding the Standardization of Practices and Procedures (*NPRM Sec. F, ¶ 1-15).*

The Coalition's Initial Proposal and its response to the NPRM were developed after many, many hours of discussion among people who have direct and lengthy experience with this band and its strengths and weaknesses. Participants included engineers like William Kessler and Robert Gehman who can rightly be credited as the engineering "fathers" of the ITFS band. Harry Perlow from Sprint, who brings years of experience in cable, MDS/ITFS, and PCS worked long and hard on this along with more than 40 other engineers representing manufacturers, carriers, and ITFS interests. This largely volunteer engineering committee was ably chaired by Paul McCarthy, also from Sprint. Writing for the Coalition, Lawyers like Todd Gray, Edwin Lavergne and Paul Sinderbrand brought to the Initial Proposal and to the Coalition's Response to the NPRM a combined total of more than 60 years of work in the ITFS/MDS band.

Wireless Bureau staff are among the Commission's "best and brightest" and they work in what I have always considered the Bureau that gets things done right. But they are relative newcomers to this band and respectfully, it would be a miracle indeed if any of them could develop alternatives to the Coalition's proposal that would work better than the very thoughtful suggestions put forth in the original Coalition Proposal.

We also want to express our strong support for the arguments for retaining ITFS eligibility restrictions and an educational use requirement for ITFS licensees that are contained in the well-reasoned "Joint Comments of The Catholic Television Network and the National ITFS Association." These Joint Comments have been vetted by the NIA and CTN Boards, and are filed in this first round of NPRM Comments.

III. High Power, High Site Video Transmission Opportunities Must Be Retained.

In ¶ 57 of the NPRM, the Commission seeks comment on "whether it will be necessary to reserve a portion of this band in the long term to accommodate high power services. We particularly seek comment from licensees who are currently engaged in high power operations as to their plans for the spectrum."

In its comments on the NPRM, The Coalition has compelling responses to this, including the fact that on a market-by-market basis, licensees can choose low power cellular operations in the Mid Band Segment, or even High Power High Site operations in the Lower and Upper Band Segments. The Coalition also points out that to accommodate FDD operations in this band, without additional unnecessary guard bands, the High Power Mid Band Segment provides a consistent nationwide 42 MHz separation for Upstream and Downstream FDD operations.

But since the Commission has asked specifically what current licensees engaged in high power operations plan for the spectrum, we are happy to answer for George Mason University. To us, the continuation of high power, high site video operations is

essential to the University's educational and outreach missions. Let me explain.

George Mason University has televised graduate and undergraduate courses for credit over its ITFS system since 1983. Currently, George Mason University uses ITFS channels in both a point-to-point and omnidirectional mode to provide graduate and undergraduate courses for credit along with supplemental educational programming to cable headends that in turn serve nearly 200,000 homes and more than 1,700 government and private offices in Northern Virginia, Maryland, and The District of Columbia... (We also use fiber, and unlicensed point-to-point microwave channels to reach other cable headends serving over 400,000 additional homes, but without the ITFS component, there would be no way to reach over 200,000 homes and 1,700 offices with our courses). About 2,500 students each semester either take complete courses via our ITFS system, or watch supplemental materials to complement their courses.

We use our ITFS system to transmit PBS programming that supplements Environmental Science courses. We transmit "Fokus Deutsch" to provide a cultural supplement for undergraduate German majors. These programs are rich in video content that would be difficult if not impossible to send as streaming video over the Internet even if students had broadband connections.

Our History of Western Civilization course, History 100, is required of every single incoming undergraduate at George Mason, and is taught in television modules which are available to students over the ITFS and in videotape format. These include films, graphics, and other visual materials that again could not be effectively presented even with a high speed Internet connection.

Geography 380, The Geography of Virginia, is another video-based course that has graphics and maps which are particularly suitable to televised instruction. This is true also of Communication 655, a graduate course in Theories of Visual Communication and the way they are used in the creation of images for web sites, video productions, corporation presentations, etc. Other courses televised on our ITFS system during the current fall 2003 semester include Communication 102, Introduction to Media Literacy, Communication 355, Video Principles and Editing, and Management 331, Labor Relations.

We reuse our same ITFS C channel group along with four MMDS channels to provide GMU courses for credit in the mornings as well as C-SPAN, C-SPAN2, CNN, CNBC, MSNBC, the open meetings of the FCC and FERC directly to government agencies, law firms, news organizations, trade associations, and corporate offices throughout the metropolitan Washington, D.C. area. Our Capitol Connection microwave television service antennas are on over 570 office buildings -- including the FCC's offices on 12th Street -- and we estimate that more than 35,000 television sets are tuned to our programming at least some part of every day.

If the Commission were to designate the entire 2.5 GHz band for low power cellular services, hundreds of offices and news organizations would no longer be able to receive the televised Open Meetings of the FCC. The loss of high power video transmissions in this band would also deprive nearly a quarter of a million cable homes of George Mason University courses for credit. It would also deprive thousands of people

in the government and the private sector of C-SPAN's coverage of the House and Senate, as well as CNN's news and information and CNBC's business news in their offices. There is no way that this valuable service could be duplicated using low power, cellularized transmissions or streaming audio and video over the Internet. It is also worth noting that cable doesn't reach many office buildings, and Direct Broadcast Satellite is in most cases prohibitively expensive to distribute throughout office buildings. For our market, high power, high site ITFS/MDS educational and informational video operations are the only solution.

Our ITFS system is completely self supporting and has been on the air 24 hours a day, 7 days a week since our first channel signed on December 19, 1981. Funds from our Capitol Connection service support GMU-TV and the production of courses for credit as well as other educational initiatives at George Mason University.

IV. The Internet is No Substitute for Television.

At ¶114 of the NPRM, the Commission "seek[s] comment on what ITFS enables educators to achieve that the Internet could not." In addition to our arguments in the previous section about those televised courses which are rich in graphical material and are not nearly as effective over the Internet, we would like to add that The George Mason University Instructional Foundation is nevertheless a heavy user of streaming media on the Internet. We stream GMU-TV, including the courses for credit and the supplemental materials, 24 hours a day, seven days a week. We also stream GMU's varsity basketball

games over the Internet. But streaming educational and sports video over the Internet is no substitute for the real thing on the TV screen in clarity, excitement, ease of use, and realism. And there is no way that the cable headends we now serve with our ITFS transmissions of GMU courses for credit would ever re-broadcast an Internet stream. Without our ability to send our courses to the cable operators via ITFS, in broadcast television quality, our educational reach into nearly a quarter million homes in parts of Northern Virginia would cease and our students in those areas would be cut off.

We also stream the open meetings of the Federal Communications Commission, the Federal Energy Regulatory Commission, and the National Transportation Safety Board for subscribers around the nation who can't or don't want to come to Washington to attend the live meetings. We also televise the FCC and FERC meetings over the Capitol Connection ITFS system in the Washington area. As a service to our Washington area television subscribers, we make the Internet streaming audio and video versions of these meetings available to them at no charge. Over the years, we have found that given the choice, our Patrons would much rather watch the FCC and FERC meetings on television than view the proceedings via the Internet on their computer.

There is also an interesting practical problem with streaming audio and video on the Internet that we should bring to the Commission's attention. Many IT directors have placed firewalls to protect their servers from streaming media precisely because even in a "multicast" mode, streaming uses a lot of a Local Area Network's bandwidth. And, when a user is watching streaming media on their workplace computer, the processor slows

down and makes multitasking -- sending an e-mail or using a word processing program -- much slower. There is just no getting around it. For distributing educational programming to a wide audience, broadcast television is far more user friendly, efficient, and realistic than the Internet will ever be.

Clearly, our very valuable Capitol Connection services and televised course transport to colleges and cable headends in Northern Virginia would be utterly destroyed if the FCC were to create an all cellular band without the high power Mid Band Segment that the WCA NIA CTN Coalition proposes. The Internet is not a viable substitute.

We are aware of many other licensees who rely heavily on high power video operations and find this far preferable to the Internet. I'm sure that in their responses to the Commission's NPRM they too will provide details of their use of high power video, and the reasons why that use must continue.

V. ITFS Eligibility With an Educational Component Must be Retained.

In a wide ranging discussion that occurs from ¶ 115 through ¶ 118 of the NPRM, the Commission ruminates about the restrictions on ITFS that come from its educational requirement. In ¶116, the Commission assumes that the ITFS and MMDS spectrum is currently underutilizied: ". . . we seek comment on whether allowing these licensees to capture such value is in the public interest on balance with having this spectrum underutilized." In the next sentence, the Commission inquires ". . . what other approach would parties recommend the FCC implement to ensure efficient use of the MMDS and

ITFS spectrum?" Then, as if answering its own question, the Commission states: "We request comment on combining the MMDS and ITFS services into a new Broadband Radio Service with requirements similar to those that apply now to MMDS, *i.e.,* open eligibility and no educational programming requirement."

Clearly, we cringe when the Commission suggests that ITFS spectrum is underutilized. George Mason and many, many more ITFS licensees utilize every megahertz that we have and could use a lot more. But perhaps the Commission's concerns are not completely misplaced but just misdirected. Certainly, at the moment, some ITFS and MMDS spectrum may be temporarily underutilized. But that is not the fault of either the licensees or the ITFS eligibility requirements. It is simply because current FCC Rules (which the Coalition Proposal and the NPRM seek to change) hamper the easy rollout of the two-way services that many ITFS leases anticipated. Unfortunately, first generation two-way customer premise equipment requires line of sight to the transmitting hub. New second generation equipment, which the current NPRM and the Coalition's Initial Proposal will allow to be easily deployed, does not require true line of site and can be installed by the customer. Much of this new equipment utilizes a TDD architecture, and requires the deinterleaving of the band so that two separate licensees don't have to become involved in order to use it (something else the NPRM and the Coalition's Proposal seek to facilitate). Other 2nd generation equipment utilizes an FDD architecture, and the current band plan does not provide for any kind of FDD operations at this time. But the Coalition's proposed new band plan

will. Thus, the Coalition Proposal and the NPRM are directly aimed at making changes to the Commission's ITFS/MDS Rules and to the band plan adopted by the Commission in 1963. These major changes will directly facilitate new, flexible and widespread utilization of this spectrum. Eligibility requirements don't need changing to accomplish this, and neither does a relaxing of the educational program requirement.

With regard to MDS spectrum at 2150-2162 MHz, the Commission itself is directly responsible for the current (and temporary) underutilization of that band. In its *Third Report and Order* the Commission addressed issues concerning the relocation of MDS channels in the 2150-2162, and in the current NPRM at ¶ 153, the Commission states: "In light of the fact that we do not yet know where MDS licensees operating on Channels 1 and 2 . . . will be relocated, we will not propose changes to service rules for those channels at this time."

We feel that pain. As the licensee an MDS 1 and an MDS 2, we have seen the direct effects of the Commission's decision to relocate our spectrum without deciding where. Rolling out any new services on these channels where they are currently licensed makes absolutely no economic sense. It is clearly not in the public interest or necessity to provide the public a service on a temporary basis that will eventually have to be stopped and the installed customer premise equipment thrown away. And, because the current first generation two-way equipment uses MDS 1 and 2 spectrum for upstream communication and ITFS or MMDS for downstream communication in two-way data applications, it is little wonder that the so many first generation applications are currently

on hold and the spectrum appears somewhat underutilized. The Commission has taken away the upstream spectrum without a clue as to where it will be relocated.

Thus the temporary underutilization in the MDS, MMDS and ITFS bands can in large part be attributed to the Commission itself. On the other hand, there is much currently going on with ITFS and MMDS video across the country, and a lot of anticipation on the part of licensees about new services that they will be able to add once the Commission adopts a new band plan that provides flexible opportunities for fixed, portable, and mobile uses in this band. The fact that we are currently in a temporary holding pattern is no justification for throwing out the educational component of ITFS or changing the current eligibility requirements. The Commission should focus on providing flexibility in this band, not abandoning an educational reserve that has endured for forty years.

Throughout the history of U.S. telecommunications policy, the government has established only three non-commercial "educational" services. When it established the FM table of assignments, a small swatch of spectrum at the low end of the band was set aside exclusively for "educational radio." Similarly with the adoption of the television table of assignments in 1952, some television channels in each market were designated for non-commercial "educational" television, many in the less desirable UHF portion of the television band. Finally forty years ago, the FCC set aside spectrum in the 2.5 GHz band (at the time considered marginal microwave spectrum) for "instructional" television services.

Although early educational television featured foreign language courses, cooking classes and guitar lessons, it soon became apparent that a higher and better use of this spectral set aside would be for "Public television" and after the creation of the Corporation for Public Broadcasting during the administration of President Lyndon Johnson, all but a few of the original educational-type programming on these stations was replaced with non-commercial dramas, documentaries, news, and other programming of interest to a more general "public" audience.

A similar thing happened to "educational" radio. In the earliest days, programming consisted of reading services, learned discussions, courses for credit and other "educational" fare. Supplementing this was European classical music; the only kind of music that these early educational broadcasters thought was suitable. Again, after the creation of The Corporation for Public Broadcasting and its community service grants, the original "educational" radio morphed into "Public" radio. National Public Radio was created in 1969-70, and with it, such news programs as "All Things Considered" and "Morning Edition." Some Public Radio stations still play a lot of European classical music but you also hear jazz and roots music, bluegrass, and the whole panoply of other non-commercial programming with a broad "public" appeal. Despite their modernization, the original set aside requiring that these now "public" radio and television stations be operated by educational institutions, non profit foundations, schools, universities and other non-commercial entities has not been tampered with by the U.S. government. Non-commercial public broadcasting remains an invaluable natural resource, something that all Americans can share and enjoy.

The Instructional television set aside, on the other hand, has not been left entirely in the hands of educational institutions and non-profit entities. In 1983, the Commission, citing "underutilization," reassigned eight channels in the E and F Group for commercial use, even though in many markets they were already licensed and in use by ITFS entities. (In Washington, both the E and F Group were licensed to local Universities. George Mason had the F Group and the E Group was shared between George Washington University and the University of Maryland). Like their cousins in public radio and television, ITFS licensees need to be allowed to expand and even alter their instructional, educational and "public" missions, but not allowed to abandon that mission altogether, to sell their licenses to commercial interests, or to have any more of this precious resource taken away from them. If the Commission permits market forces to dictate who controls the spectrum, over time we will see the *de facto* reallocation of this valuable spectrum resource from educational to commercial interests. This would not be in the public interest or in the long term interest of the educational or the commercial communities.

VI. The Retention of 5% of Capacity for Educational Use is Only a Guideline.

At ¶ 113 of the NPRM, the Commission assumes that ". . . the required amount of educational programming carried on [ITFS] stations in actuality may barely exceed the minimum proportion required for DBS. We need to remind the Commission that the 5% figure did not come from the ITFS Community, but rather from the Commission itself in its Two-Way Report and Order. The ITFS community and most in the commercial MDS operators never requested that low figure. Remember too, that the 5% figure is only a baseline and many ITFS licensees retain far more than 5% for their educational use. Many others don't lease any capacity to

commercial interests. The George Mason University Instructional Foundation has never leased air time capacity on its ITFS stations WLX 728, or KA 88815 and KA88816. Finally, if the Commission adopts the new band plan proposed by the WCA-CTN-NIA Coalition, it can be reasonably expected that many ITFS licensees might well move up to 25% educational use, because 25% of their channel capacity (i.e. one channel for each licensee) will be placed in the High Power Mid Band segment and at least initially be used primarily for educational video or data services.

VII. Conclusion

The Commission should be commended for its thoughtful and wide ranging questions in the NPRM as well as for considering the Coalition's Initial Proposal and moving toward the speedy adoption of some and hopefully all of its suggested changes to the band plan and the Rules governing ITFS and MDS. In conclusion, we want to simply remind the Commission that ITFS is a national treasure that has served the American public very well in the past. We are proud to be involved in the ITFS, MDS, and MMDS segments of this spectrum in the greater metropolitan Washington area. As such, we recognize, perhaps better than others, that the ITFS portion of the band must remain in the control of the educational community, with a high power component, and a mandate to continue serving educational needs. But with the kind of increased flexibility and freedom recommended in the Coalition's Initial Proposal (and much of the NPRM), this spectrum, already shared by ITFS, MDS, and MMDS licensees, will also be able to provide new and exciting fixed, portable, and mobile services to the American public in the near future.

THE GEORGE MASON UNIVERSITY INSTRUCTIONAL FOUNDATION, INC.

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